identification message is generated at the first optical component and is transmitted from the first optical component to the second optical component over a dedicated communications channel running parallel to the fiber connection. The port identification message at the second optical component and information identifying the second optical component is conveyed to a processing agent. The port identification message and the information identifying the second optical component is checked against a predefined connection model which is stored in the processing agent to determine if the connection is correct. An indication of whether there is a correct connection or a misconnection is provided. Applicant emphasizes that the method described above is a method of verifying if a <u>fiber connection</u> <u>between a first</u> <u>optical component</u> <u>and a second optical component is correct</u>. An exemplary embodiment in which the method is applied is shown in Figure 4. In particular, in Figure 4 the above method can be applied for example to an amplifier-to-OSC-card (amplifier-to-(Optical Service Channel)-card) connection 420, an amplifier-to-multiplexer connection 426, an amplifier-to-demultiplexer connection 428, and amplifier-to-midstage access (MSA) element connections 424.

Oliva *et al.*

The Oliva *et al.* reference discloses a system and method for continuously monitoring neighbouring network elements and determining physical connection topology and changes in topology among network elements. With respect, although the system and method of Oliva *et al.* determines physical connection topology and changes in topology this reference has nothing to do with determining whether connections are <u>correct</u>.

Claim 1

Claim 1 is directed to a method of verifying if a fiber connection between a first optical component and a second optical component is correct, and recites:

"storing a predefined connection model in a processing agent".

The Examiner has referred to the management system 46 of Figure 11 of the Oliva *et al.* reference as disclosure for this claim feature. With respect, the management system 46 determines the topology 74 of a network (see Figure 11, and column 10, lines 26 and 27 of the

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Oliva *et al.* reference). With respect, in the Oliva *et al.* reference the topology of a network is simply <u>determined</u>. Any changes are updated, and there is no disclosure of any <u>predefined</u> connection model being stored.

Claim 1 also recites:

"transmitting the port identification message from the first optical component to the second optical component over a dedicated communications channel running parallel to the fiber connection".

The Examiner has referred to port identification 64, and network elements 42, 44 of Figure 11 of the Oliva *et al.* reference as disclosure for this claim feature. With respect, Applicant submits there is no disclosure in Figure 11 or anywhere else in the Oliva *et al.* reference of transmitting a port identification message...over a <u>dedicated</u> communications channel running parallel to a fiber connection.

Claim 1 also recites:

"checking the port identification message and information identifying the second optical component against the predetermined connection model stored in the processing agent to determine if the connection is correct; and

indicating a correct connection or a misconnection".

The Examiner has referred to column 3, lines 6 to 53; column 4, lines 19 to 67; column 5, lines 1 to 11; column 6, lines 15 to 67; column 7, lines 1 to 40; column 8, lines 55 to 67; and column 9, lines 1 to 46 of the Oliva *et al.* as disclosure for this claim feature. With respect, Applicant submits that the Examiner has mischaracterized the Oliva *et al.* reference. In particular, in the above passages referred to by the Examiner, what is disclosed is how a topology is determined and there is no notion of whether a connection is <u>correct</u> or <u>incorrect</u>. In particular, as discussed above, in the Oliva *et al.* reference there is no disclosure of any predefined connection model being stored and there can be no way of checking a port identification message...against a predefined connection model. In the Oliva *et al.* reference, a topology is

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simply determined. The Oliva *et al.* reference does disclose "fault reporting" and verification of continued connection; however, Applicant notes that this does not equate to indicating a <u>correct</u> connection or a <u>misconnection</u>. In particular, for example a connection which has been made can undergo a fault; however, it still remains a <u>correct</u> connection.

Thus, not all of the claim features of claim 1 are disclosed in the Oliva *et al.* reference.

The Examiner is respectfully requested to withdraw the 35 U.S.C. 102(e) rejection of claim 1.

Claim 4

Claim 4 depends on claim 1 and should be allowed for the same reasons as discussed above with reference to claim 1. Furthermore, the Examiner has not specifically addressed the additional claim feature of claim 4, and Applicant submits that the Oliva *et al.* reference does not disclose this additional claim feature of claim 4.

The Examiner is respectfully requested to withdraw the 35 U.S.C. 102(e) rejection of claim 4.

Claim 6

Claim 6 depends on claim 1 and should be allowed for the same reasons as discussed above with reference to claim 1. The Examiner is respectfully requested to withdraw the 35 U.S.C. 102(e) rejection of claim 6.

Claim 7

Claim 7 depends on claim 1 and should be allowed for the same reasons as discussed above with reference to claim 1. Furthermore, claim 7 recites:

"wherein the predefined connection model stored in the processing agent is generated from user input of a pre-provisioned or inferred connection expectation".

This claim feature refers to the predefined connection model, and as discussed above

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there is no disclosure in the Oliva *et al.* reference of such a model. Therefore, this claim feature is also not disclosed in the Oliva *et al.* reference. Furthermore, in the Oliva *et al.* reference there is no determining if a connection is correct and indicating a correct connection or a misconnection. The Examiner has referred to column 3, lines 6 to 53; column 4, lines 19 to 67; column 5, lines 1 to 11; column 6, lines 15 to 67; column 7, lines 1 to 40; column 8, lines 55 to 67; and column 9, lines 1 to 46 of the Oliva *et al.* reference as disclosure for this claim feature. With respect, these passages disclose how a management system 46 determines the topology of a network 40 (see Figure 11). The topology is determined from identifiers provided by network elements 42 and 44 over management links (see column 6, lines 41 to 44) and there is no disclosure of any predefined connection model being generated from <u>user input</u> of a pre-provision or inferred connection expectation.

Thus, the additional claim feature of claim 7 is not disclosed in the Oliva *et al.* reference.

The Examiner is respectfully requested to withdraw the 35 U.S.C. 102(e) rejection of claim 7.

Claim 13

Claim 13 is directed to a processing agent for use in an optical system to determine if a fiber connection between a first optical component and a second optical component is correct, and should be allowed for the same reasons as discussed above with reference to claim 1.

The Examiner is respectfully requested to withdraw the 35 U.S.C. 102(e) rejection of claim 13.

Claim 14

Claim 14 is directed to a method of verifying if a fiber connection between a first optical component and a second optical component is correct, and recites:

"storing a predefined connection model in a processing agent".

This claim feature is not disclosed in the Oliva *et al.* reference as discussed above with

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reference to claim 1.

Claim 14 recites:

"adding a dither to an optical signal to be transmitted from the first optical component to the second optical component to generate a dithered optical signal".

With respect, the Examiner has not addressed this claim feature of claim 14, and Applicant submits that this claim feature is not disclosed in the Oliva *et al.* reference. In particular, the Examiner has not explicitly referred to any disclosure of adding a dither to an optical signal in the Oliva *et al.* reference, and Applicant submits that this is not disclosed in the Oliva *et al.* reference.

Claim 14 recites:

"transmitting the dithered optical signal from the first optical component to the second optical component over the fiber connection".

Again, the Examiner has not specifically addressed this claim feature which involves "transmitting the dithered optical signal...", and Applicant submits that there is no such disclosure in the Oliva *et al.* reference.

Claim 14 recites:

"receiving the dithered optical signal at the second optical component".

Again, the Examiner has not addressed this claim feature of "receiving the dithered optical signal", and Applicant submits that there is no disclosure of such a feature in the Oliva *et al.* reference.

Claim 14 recites:

"detecting the dither contained in the dithered optical signal received at the second optical component".

The Examiner has not specifically addressed this claim feature of claim 14 which recites

"detecting the dither", and Applicant submits that there is no disclosure of such a feature found in the Oliva *et al.* reference.

Claim 14 recites:

"conveying the dither detected at the second optical component and information identifying the second optical component to the processing agent".

The Examiner has not specifically addressed this claim feature of claim 14 which recites "conveying the dither", and Applicant submits that this claim feature is not disclosed in the Oliva *et al.* reference.

Claim 14 also recites:

"checking the dither and information identifying the second optical component against the predefined connection model stored in the processing agent to determine if the connection is correct".

This claim feature is not disclosed in the Oliva *et al.* reference for the same reasons as discussed above with reference to claim 1, except that in this claim what is being checked is a dither. Furthermore, again the Examiner has not specifically addressed the feature of "checking the dither", and Applicant submits that there is no disclosure of such a feature found in the Oliva *et al.* reference.

Finally, claim 14 recites:

"indicating a correct connection or a misconnection".

This claim feature is not disclosed in the Oliva *et al.* reference for the same reasons as discussed above with reference to claim 1.

Thus, none of the claim features of claim 14 are disclosed by the Oliva *et al.* reference.

The Examiner is respectfully requested to withdraw the 35 U.S.C. 102(e) rejection of claim 14.

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Claim 18

Claim 18 depends on claim 14 and should be allowed for the same reasons as discussed above with reference to claim 14.

The Examiner is respectfully requested to withdraw the 35 U.S.C. 102(e) rejection of claim 18.

Claim 19

Claim 19 depends on claim 18, which contains all of the claim limitations of claim 14, and should be allowed for the same reasons as discussed above with reference to claim 14. Furthermore, claim 19 recites:

"wherein the processing agent is connected to the first and second optical components via electrical backplane connections".

The Examiner has referred to Figure 11 of the Oliva *et al.* reference as disclosure for this claim feature. With respect, in Figure 11 there is no disclosure of any "electrical backplane connections".

Thus, the additional claim feature of claim 19 is not disclosed in the Oliva *et al.* reference.

The Examiner is respectfully requested to withdraw the 35 U.S.C. 102(e) rejection of claim 19.

Claim Rejections – 35 U.S.C. 103

In paragraph 6 of the Detailed Action, the Examiner has rejected claims 2, 3, 5, and 8 to 12 under 35 U.S.C. 103(a) as being unpatentable over the Oliva *et al.* reference. Given below is a discussion on how claims 2, 3, 5, and 8 to 12 are patentable over the Oliva *et al.* reference.

Claim 2

To begin, there are three requirements for establishing a *prima facie* case of obviousness:

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1) all features must be present; 2) there must be an expectation of a reasonable chance of success; and 3) there must be some suggestion or motivation in the prior art to modify the reference.

Claim 2 depends on claim 1 and therefore contains all of the limitations of claim 1. As discussed above with reference to claim 1, not all claim features of claim 1 are disclosed by the Oliva *et al* reference. As such, since claim 2 contains all of the limitations of claim 1 not all of the claim features of claim 2 are disclosed by the Oliva *et al.* reference, and requirement 1) for a *prima facie* case of obviousness is not satisfied.

Regarding requirement 2), since the claim features of claim 2 are not all disclosed by the Oliva *et al.* reference there is no reason to believe that the modification proposed by the Examiner produces the desired result of the invention as claimed in claim 2. As such, this requirement is not satisfied.

Finally, regarding requirement 3), as discussed above the Oliva *et al.* reference discloses a system and method for continuously monitoring neighbouring network elements and determining physical connection topology and changes in topology among the network elements (see Abstract of the Oliva *et al.* reference). The transmission of identification takes place in overhead data channels, designated as topology trace channels, which are designed into the overall framework of the transmission system and its equipment. No information capacity that could support network customer traffic or network control traffic between network elements is pre-empted (see abstract of the Oliva *et al.* reference). As discussed in column 3, lines 36 to 38 of the Oliva *et al.* reference, a network element identification is provided in the physical layer overhead data without reduction of a bandwidth of the payload data. The use of the overhead prevents the reduction of a bandwidth in the payload data.

The Examiner states "it would have been obvious to obtain the dedicated communications channel running parallel to the fiber connection [is] in an optical fiber link separate from the fiber connection in order to allow the port identification, network element identification, and management signals are distinguished from the data signal and simultaneously avoiding the interference between the signals". With respect, as discussed above, in the Oliva *et*

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al. reference the use of providing a network element identification in the physical layer overhead data is to prevent reduction of bandwidth for the payload data, and the suggestion made by the Examiner teaches away from the Oliva *et al.* reference in that using a dedicated communication channel running parallel to a fiber connection in an optical fiber link separate from the fiber connection in order to allow port identification would make use of an additional optical fiber link thereby using up bandwidth which would otherwise be used for payload data. As such, requirement 3) for a *prima facie* case of obviousness is not satisfied.

Thus, none of the requirements for *prima facie* case of obviousness are satisfied.

The Examiner is respectfully requested to withdraw the 35 U.S.C. 103(a) rejection of claim 2.

Claims 3 and 5

Claims 3 and 5 depend on claim 1 and therefore contains claim features which are not disclosed in the Oliva *et al.* reference. Requirements 1) and 2) for a *prima facie* case of obviousness are therefore not satisfied for the same reasons as discussed above with reference to claim 2. Thus, not all of the requirements for a *prima facie* case of obviousness are satisfied. Furthermore, the Examiner has not specifically addressed the additional claim features of claims 3 and 5.

The Examiner is respectfully requested to withdraw the 35 U.S.C. 103(a) rejection of claims 3 and 5.

Claim 8

Claim 8 is directed to an optical connectivity management system for determining if a fiber connection between a first optical component and a second optical component in an optical system is correct, and should be allowed for the same reasons as discussed above with reference to claim 1. In particular, not all of the claim features of claim 8 are disclosed in the Oliva *et al.* reference for the same reasons that the claim features of claim 1 are not all disclosed in the Oliva *et al.* reference. As such requirement 1) for a *prima facie* case of obviousness is not satisfied.

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Furthermore, since the claim features of claim 8 are not all disclosed there is no reason to believe that the Oliva *et al.* reference can be modified to produce the desired result of the invention as claimed in claim 8. As such, requirement 2) is not satisfied.

Thus, not all of the requirements for a *prima facie* case of obviousness are satisfied.

The Examiner is respectfully requested to withdraw the 35 U.S.C. 103(a) rejection of claim 8.

Claim 9

Claim 9 depends on claim 8 and therefore contains all of the claim features of claim 8. As such, not all of the claim features of claim 9 are disclosed by the Oliva *et al.* reference and requirement 1) for a *prima facie* case of obviousness is not satisfied. Furthermore, requirement 2) for *prima facie* case of obviousness is not satisfied for the same reasons as discussed above with reference to claim 8. Finally, requirement 3) for a *prima facie* case of obviousness is not satisfied for the same reasons as discussed above with reference to claim 2.

Thus, none of the requirements for a *prima facie* case of obviousness are satisfied.

The Examiner is respectfully requested to withdraw the 35 U.S.C. 103(a) rejection of claim 9.

Claim 10

Claim 10 depends on claim 8 and should be allowed for the same reasons as discussed above with reference to claim 8. Furthermore, the Examiner has not specifically addressed the additional feature of claim 10.

The Examiner is respectfully requested to withdraw the 35 U.S.C. 103(a) rejection of claim 10.

Claim 11

Claim 11 depends on claim 10 and should be allowed for the same reasons as discussed above with reference to claim 10. Furthermore, claim 11 recites:

"wherein the transmitter at the first optical component comprises an optical source with a WDM coupler and the receiver at the second optical component comprises a WDM filter with a photo detector".

With respect, the Examiner has simply stated "it would have been obvious to obtain an optical transmitter and an optical receiver in order to provide an optical communication network with high capacity and high speed". However, the Examiner has not specifically addressed this claim feature.

The Examiner is respectfully requested to withdraw the 35 U.S.C. 103(a) rejection of claim 11.

Claim 12

Claim 12 depends on claim 9 and should be allowed for the same reasons as discussed above with reference to claim 12. Furthermore, the Examiner has not specifically addressed the additional claim feature of claim 12.

The Examiner is respectfully requested to withdraw the 35 U.S.C. 103(a) rejection of claim 12.

Applicant appreciates the Examiner's comment in paragraph 7 of the Detailed Action indicating that claims 15 to 17 would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims; however, given the above discussion in favour of the rejected claims Applicant elects not rewrite claims 15 to 17 in independent form.
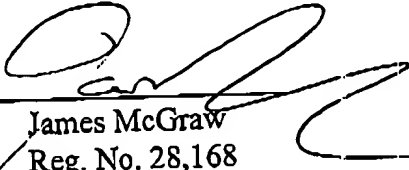
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The Examiner is respectfully requested to pass this application to allowance but, if there are any outstanding issues, the Examiner is respectfully requested to telephone the undersigned.

Respectfully submitted,

MARK HINDS, ET AL

By _____
James McGraw
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Date: September 1, 2004

JMc:MPP:acb